US OIL RECOVERY SUPERFUND SITE
WORK PLAN REFINEMENT/MODIFICATION NOTICE

REFERENCE DOCUMENTS: Remedial Investigation/Feasibility Study (RI/FS) Work Plan, Sampling and Analysis Plan Volume I Field Sampling Plan (FSP), Sampling and Analysis Plan Volume II Quality Assurance Project Plan (QAPP) (all dated December 23, 2015), Site-Specific Background Soil Concentration Calculations, US Oil Recovery Superfund Site (Final Memo submitted to EPA on November 9, 2017).

WORKPLAN REFINEMENT/MODIFICATION NOTICE NO.: AO1-1-6

DATE: January 3, 2018

DESCRIPTION OF REFINEMENT/MODIFICATION:

This Work Plan Refinement Notice (WRN) describes the work proposed to complete Iteration 1 at the Site based an evaluation of the data collected to date and discussion with EPA and TCEQ during the Data Review Meeting held on November 30, 2017. The following proposed work is summarized as: 1) Drilling and sampling of 12 additional off-property soil borings; ; 2) Installation and sampling of three (3) off-property groundwater monitoring wells; 3) Re-development and re-sampling of MW-7; 4) Collection of a groundwater sample for cation/anion analysis from wells MW-7, MW-8, MW-10 and MW-13; 5) Slug testing of six monitoring wells; and 6) Collection of short-term variations in water-level data from transducers. More information and justification for the proposed work is provided below.

Soil Extent Evaluation

Soil concentration data for perimeter borings were compared to preliminary screening values (PSVs) to conduct the extent evaluation. PSVs include conservative risk-based values from the literature and soil background upper tolerance limits (UTLs) provided in the "Site-Specific Background Soil Concentration Calculations, US Oil Recovery Superfund Site," submitted to EPA on November 9, 2017, where applicable. To complete the extent evaluation at the Site, 12 additional soil borings ("delineation borings") (SB-111 through SB-122 as shown on Figure 1) are proposed. A summary of the proposed delineation borings and the PSV exceedances in associated perimeter borings is provided on Table 1. Delineation borings are proposed to define Chemicals of Potential Concern (COPC) concentrations in soil samples adjacent to the primary source areas at the Site (i.e., the historic burial pit, the area west of the warehouse, the northeast slope, etc.). In general, delineation efforts are focused on COPCs that are related to historic Site industrial activities. Delineation is not proposed for compounds that appear at low concentrations in many samples collected at the Site and/or that do not appear to be related to a nearby source area or a historic industrial activity at the Site (e.g., metals such as antimony, beryllium and selenium, and isolated occurrences of some pesticides and SVOCs detected at low levels that do not appear to be attributable to a nearby source area). Further delineation is not possible for soil borings immediately adjacent to the Vince Bayou shoreline (e.g., SB-58, SB-95, SB-57, SB-56, SB-55, SB-54, SB-53 and SB-49), which will be addressed during Iteration 2 sampling. No further delineation is proposed at SB-69 and SB-70, which, as detailed in the RI/FS Work Plan, were installed to evaluate impacts from surface drainage flowing onto the southern portion of the property from off-site. At the delineation soil boring locations, the proposed sample intervals were chosen to correspond with those in which COPCs PSV exceedances were observed in proximal borings (as shown on Table 1). In addition, only the COPCs/analytes that exceeded PSVs within that interval in the associated perimeter borings are proposed for analysis, except for SB-119 and SB-120, where, due to the number of exceedances, the full analyte list for metals, VOCs, SVOCs, Pesticides/Herbicides and TPH is proposed. The full analyte list is also proposed for the soil sample interval at SB-112; the associated perimeter borings were analyzed for arsenic only, as detailed in USOR WRN-AOI-4 dated May 19, 2017. Arsenic will be analyzed in all proposed soil samples.

Groundwater Extent Evaluation

COPC concentrations from on-property groundwater samples were compared to PSVs (typically the Federal Maximum Contaminant Level (MCL)) for the groundwater extent evaluation. Similar to the soil extent evaluation, delineation efforts are focused on COPCs that are related to historic Site industrial activities. Furthermore, delineation is not proposed for compounds that appear at low concentrations in many samples collected at the Site and that do not appear to be related to a source area or historical industrial activity at the Site. Finally, the groundwater extent evaluation considers the hydraulic gradient at the Site that clearly shows that flow in the uppermost water-bearing unit at the Site is towards Vince Bayou. Given those considerations, the extent evaluation for groundwater focuses on the downgradient portion of the Site where concentrations of COPCs exceed PSVs and are associated with the northeast slope source area. COPC concentrations that exceeded PSVs include metals, pesticides and herbicides, VOCs, SVOCs and TPH. Table 2 summarizes the COPC PSV exceedances observed in groundwater samples collected from the perimeter monitoring wells. Three monitoring wells (MW-9, MW-15, and MW-16 as shown on Figure 2) are proposed downgradient of the area encompassed by MW-7, MW-8 and MW-10. For the groundwater samples collected from the proposed monitoring wells, the full analyte list for VOCs, SVOCs, pesticides/herbicides, metals and TPH is proposed.

Re-Development and Re-Sampling of MW-7 and Sampling for TDS and Cation/Anion analysis

A groundwater sample collected at MW-7 contained arsenic at a concentration of 43.9 mg/L. To confirm this initial concentration, which is orders of magnitude different than the concentrations observed in all other monitoring wells, redevelopment and resampling of MW-7 is proposed. MW-7 will be redeveloped and sampled in accordance with procedures outlined in the FSP. The groundwater sample will be analyzed for arsenic only.

The groundwater sample from well MW-13 contained a TDS concentration of 15,200 mg/L. This concentration is significantly different than TDS concentrations observed in other nearby monitoring wells at the Site. In general, TDS concentrations were higher near the bayou and decreased moving away (and upgradient) from the bayou which would be expected based on influence from brackish water in the bayou (Figure 3). However, the TDS concentration in the sample from MW-13, which is located in a central area of the Site, had the highest TDS concentration of any sample collected at the Site. To more fully evaluate the TDS at this location, an additional groundwater sample will be collected and analyzed for TDS, major cations (Ca, Mg, Na, K) and major anions (HCO_3, CO_3, F, SO_4 and NO_3). Groundwater samples will also be collected from MW-7, MW-8 and MW-10 (which also had high TDS concentrations) and analyzed for TDS and major cation/anions.

Slug Testing

The objective of slug testing, as stated in the RI/FS work plan, is to obtain information to estimate the hydraulic conductivity of the uppermost groundwater bearing unit at the Site. Wells suggested for slug testing were selected to account for a range of hydraulic conditions and spatial coverage across the site. The data will be used to estimate groundwater flow velocities, evaluate contaminant transport, and for groundwater classification. Slug testing is proposed for MW-1, MW-5, MW-6, MW-10, MW-11 and MW-13.

As detailed in the RI/FS Work Plan, wells will be slug tested by instantaneously raising and lowering the water level in a well with a slug of known volume. Both slug-in and slug-out tests will be performed at each well. Water levels will be recorded with a pressure transducer and a water level meter. The resulting data will be evaluated considering the water level in the well using AQTESOLV or a similar

software, and the most appropriate test results will be used to estimate the hydraulic conductivity of the groundwater bearing unit in the immediate vicinity of the well.

Groundwater Tidal Effects Study

A groundwater tidal effects study will be performed in MW-7, MW-8, MW-9, MW-10, MW-15 and MW-16. The objective of the study is to evaluate the impact of tidal flux in Vince Bayou on the groundwater bearing unit at the Site. A pressure transducer will be placed in each well and the water levels will be continuously recorded for a period of approximately one week, preferably close to or during spring tide.

After the testing period, the data from the pressure transducers will be downloaded and processed. The data will be compared to water levels recorded at the nearest NOAA tidal station, which is the Manchester tidal station located in the Houston Ship Channel. The data will be evaluated to identify potential groundwater input/influence from the bayou.

RATIONALE FOR REFINEMENT/MODIFICATION:

Soil and groundwater delineation is proposed to complete the extent evaluation for those media. To further evaluate elevated arsenic concentrations at MW-7, re-development and re-sampling is proposed for that well. Groundwater samples will be collected from MW-7, MW-8, MW-10, and MW-13 and analyzed for TDS and cation/anion analysis to more fully evaluate TDS concentrations measured in a groundwater samples collected from those wells. In addition, slug testing is proposed at six monitoring wells to estimate the hydraulic conductivity of the groundwater bearing unit at the Site. Finally, a groundwater tidal effects study is proposed to evaluate the influence of Vince Bayou on the groundwater bearing unit at the Site.

Respondents' Project Coordinator: _____ Date: 1/2/18
Eric Pastor
Pastor, Behling & Wheeler, LLC

EPA Project Manager: _____ Date: 1/4/18
Raji Josiam

TABLES

Table 1
Soil PSV Exceedance Summary and Proposed Delineation Borings
WRN AOI-1-6
US Oil Recovery Superfund Site
Pasadena, TX

Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-111	Evaluate extent of COPCs in surface and shallow soil west of SB-1, SB-103O and the historic burial pit	Surface Soil 0-0.5	**Metals** Arsenic Mercury **Pesticides/Herbicides** alpha-BHC beta-BHC	SB-1	0-0.5 Surface Soil	Metals	Arsenic	8.43	40.9
							Mercury	0.243	0.337
							Antimony	1	1.16
							Selenium	0.679	0.797
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
		Shallow Soil 0.5-5	**Metals** Arsenic **VOCs** 1,4-dicholorobenzene			Pesticides/Herbicides	alpha-BHC	0.0021	0.0023
							beta-BHC	0.0026	0.003
						TPH	No Exceedances		
					3.0-5.0 Shallow Soil	Metals	No Exceedances		
						VOCs	1,4-Dichlorobenzene	0.00046	0.011
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					37.0-39.0 Subsurface Soil	Metals	No Exceedances		
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
				SB-103O	0-0.5 Surface Soil	Metals	Arsenic	8.43	48.5
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
					3.0-3.5 Shallow Soil	Metals	No Exceedances		
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
					9.0-10.0 Subsurface Soil	Metals	No Exceedances		
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
SB-112	Evaluate the extent of arsenic west of SB-103Q, SB-103R, SB-103V and the historic burial pit	Surface Soil 0-0.5	Full Analyte List	SB-103Q	0-0.5 Surface Soil	Metals	Arsenic	8.43	25.8
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
					2.0-3.0 Shallow Soil	Metals	No Exceedances		
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
					11.0-12.0 Subsurface Soil	Metals	No Exceedances		
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
				SB-103R	0-0.5 Surface Soil	Metals	Arsenic	8.43	25.3
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
					4.0-4.6 Shallow Soil	Metals	No Exceedances		
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
					12.0-13.0 Subsurface Soil	Metals	No Exceedances		
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
				SB-103V	0-0.5 Surface Soil	Metals	Arsenic	8.43	44.6
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
					1.0-2.0 Shallow Soil	Metals	No Exceedances		
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		
					9.0-10.0 Subsurface Soil	Metals	No Exceedances		
						VOCs	--		
						SVOCs	--		
						Pesticides/Herbicides	--		
						TPH	--		

Table 1
Soil PSV Exceedance Summary and Proposed Delineation Borings
WRN AOI-1-6
US Oil Recovery Superfund Site
Pasadena, TX

Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-113	Evaluate extent of COPCs west of SB-19, SB-19 and SB-20	Surface Soil 0-0.5	**Metals** Arsenic **Pesticides/Herbicides** 2,4-DB 4,4'-DDT alpha-BHC beta-BHC Aldrin Dieldrin Endrin Endrin Aldehyde	SB-18	0-0.5 Surface Soil	Metals	Arsenic	8.43	10.9
							Selenium	0.679	1.49
							Chromium	30	38.3
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	2,4-DB	0.085	0.11
							alpha-BHC	0.0021	0.014
							beta-BHC	0.0026	0.0074
						TPH	No Exceedances		
					3.0-5.0 Shallow Soil	Metals	Beryllium	1.53	1.58
							Selenium	1.04	1.54
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
		Shallow Soil 0.5-5	**Metals** Arsenic **Pesticides/Herbicides** Aldrin	SB-19	0-0.5 Surface Soil	Metals	Arsenic	8.43	32.5
							Selenium	0.679	1.67
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	2,4-DB	0.085	0.12
							4,4'-DDT	0.03	0.048
							Aldrin	0.002	0.0048
							Dieldrin	0.052	0.067
							Endrin	0.013	0.017
							Endrin aldehyde	0.011	0.017 J
						TPH	No Exceedances		
					3.0-5.0 Shallow Soil	Metals	Selenium	1.04	1.63
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	Aldrin	0.002	0.0039 J
						TPH	No Exceedances		
				SB-20	0-0.5 Surface Soil	Metals	Arsenic	8.43	14.6
							Selenium	0.679	1.75
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					0.5-1.0 Shallow Soil	Metals	Selenium	1.04	1.84
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					5.0-7.0 Subsurface Soil	Metals	Selenium	1.04	2.25
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		

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Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-114	Evaluate extent of COPCs in surface soils west of SB-26, SB-68, SB-75, SB-76 and the former historic tank farm	Surface Soil 0-0.5	**Metals** Arsenic Mercury **Pesticides/Herbicides** Dalapon	SB-26	0-0.5 Surface Soil	Metals	Arsenic	8.43	32.2
							Mercury	0.243	0.939 J
							Selenium	0.679	1.33
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					3.0-5.0 Shallow Soil	Metals	Selenium	1.04	1.31
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					7.0-7.8 Subsurface Soil	Metals	No Exceedances		
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
				SB-68	0-0.5 Surface Soil	Metals	Arsenic	8.43	57.4
							Selenium	0.679	1.7
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					3.0-5.0 Shallow Soil	Metals	Selenium	1.04	1.28
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					7.0-9.0 Subsurface Soil	Metals	Manganese	847	927
							Selenium	1.04	1.22
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	Aldrin	0.002	0.0021
						TPH	No Exceedances		
				SB-75	0-0.5 Surface Soil	Metals	Arsenic	8.43	11.6
							Selenium	0.679	1.38
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					1.0-2.0 Shallow Soil	Metals	Beryllium	1.53	1.55
							Selenium	1.04	2.16
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
				SB-76	0-0.5 Surface Soil	Metals	Arsenic	8.43	12.7
							Barium	300	390
							Beryllium	1.5	1.53
							Cobalt	36.1	43.2
							Manganese	997	2200
							Selenium	0.679	2.8
							Vanadium	50	55.7
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	Dalapon	0.0055	0.0062 J
						TPH	No Exceedances		
					1.0-2.0 Shallow Soil	Metals	Beryllium	1.53	1.66 J
							Selenium	1.04	2.21
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		

Table 1
Soil PSV Exceedance Summary and Proposed Delineation Borings
WRN AOI-1-6
US Oil Recovery Superfund Site
Pasadena, TX

Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-115	Evaluate extent of COPCs west of SB-27, SB-28, SB-77 and SB-78	Surface Soil 0-0.5	**Metals** Arsenic Mercury **Pesticides/Herbicides** 4,4´-DDD 4,4´-DDE 4,4´-DDT Aldrin beta-BHC Dalapon Dieldrin **SVOCs** 3,3´-Dichlorobenzidine **TPH** >C12-C28	SB-27	0-0.5 Surface Soil	Metals VOCs SVOCs Pesticides/Herbicides TPH	Arsenic Mercury No Exceedances No Exceedances 4,4´-DDD 4,4´-DDE 4,4´-DDT Aldrin beta-BHC Dieldrin No Exceedances	8.43 0.243 0.043 0.054 0.03 0.002 0.0026 0.052	32.8 JH 0.3 0.09 0.23 0.13 0.0051 J 0.014 0.077 J
		Shallow Soil 0.5-5	**Metals** Arsenic Mercury **VOCs** 1,2,4-Trichlorobenzene 1,4-Dichlorobenzene **Pesticides/Herbicides** 4,4´-DDD 4,4´-DDE Aldrin alpha-BHC beta-BHC delta-BHC Dieldrin gamma-BHC		4.0-4.8 Shallow Soil	Metals VOCs SVOCs Pesticides/Herbicides TPH	Arsenic Mercury 1,2,4-Trichlorobenzene 1,4-Dichlorobenzene No Exceedances 4,4´-DDD 4,4´-DDE Aldrin alpha-BHC beta-BHC delta-BHC Dieldrin gamma-BHC No Exceedances	30.4 0.243 0.0033 0.00046 0.043 0.054 0.002 0.0021 0.0026 0.0014 0.052 0.0014	114 0.671 0.0061 0.027 1.2 0.34 0.0034 J 0.054 0.24 0.008 0.067 J 0.0099
		Subsurface Soil >5	**Metals** Arsenic Mercury **VOCs** 1,4-Dichlorobenzene **Pesticides/Herbicides** 4,4´-DDD 4,4´-DDE Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC		8.0-8.6 Subsurface Soil	Metals VOCs SVOCs Pesticides/Herbicides TPH	Arsenic Mercury Antimony Selenium Thallium 1,4-Dichlorobenzene No Exceedances 4,4´-DDD 4,4´-DDE Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC No Exceedances	30.4 0.243 1 1.04 0.202 0.00046 0.043 0.054 0.002 0.0021 0.0026 0.0014 0.0014	186 5.39 2.52 1.7 1.17 0.035 0.38 0.21 0.015 0.0035 0.0051 0.0018 0.0019
				SB-28	0-0.5 Surface Soil	Metals VOCs SVOCs Pesticides/Herbicides TPH	Selenium No Exceedances 3,3´-Dichlorobenzidine No Exceedances No Exceedances	0.679 0.00081 	1.5 0.018
					4.0-5.0 Shallow Soil	Metals VOCs SVOCs Pesticides/Herbicides TPH	Manganese Selenium No Exceedances No Exceedances No Exceedances No Exceedances	847 1.04 	873 1.87
				SB-77	0-0.5 Surface Soil	Metals VOCs SVOCs Pesticides/Herbicides TPH	Arsenic Selenium No Exceedances No Exceedances Dalapon No Exceedances	8.43 0.679 0.0055 	26.6 1.61 0.0057 J
					1.0-2.0 Shallow Soil	Metals VOCs SVOCs Pesticides/Herbicides TPH	Selenium No Exceedances No Exceedances No Exceedances No Exceedances	1.04 	1.84
				SB-78	0-0.5 Surface Soil	Metals VOCs SVOCs Pesticides/Herbicides TPH	Selenium No Exceedances No Exceedances No Exceedances C12-C28	0.679 1.5	2.1 14 J
					1.0-2.0 Shallow Soil	Metals VOCs SVOCs Pesticides/Herbicides TPH	Selenium No Exceedances No Exceedances No Exceedances No Exceedances	1.04 	2

Table 1
Soil PSV Exceedance Summary and Proposed Delineation Borings
WRN AOI-1-6
US Oil Recovery Superfund Site
Pasadena, TX

Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-116	Evaluate extent of COPCs in surface and shallow soil west of SB-60, SB-61 and SB-92	Surface Soil 0-0.5	**Metals**	SB-60	0-0.5 Surface Soil	Metals	Arsenic	8.43	8.75
			Arsenic				Manganese	997	1240
			Mercury				Selenium	0.679	1.33
			Pesticides/Herbicides				Chromium	30	47.1
			4,4'-DDT				Vanadium	50	63.6
			Aldrin			VOCs	No Exceedances		
			alpha-BHC			SVOCs	No Exceedances		
			beta-BHC			Pesticides/Herbicides	No Exceedances		
			Dalapon			TPH	No Exceedances		
			delta-BHC		0.5-1.0 Shallow Soil	Metals	Arsenic	30.4	67.4
			gamma-BHC				Selenium	1.04	1.4
			Toxaphene				Thallium	0.202	0.398 J
		Shallow Soil 0.5-5	**Metals**			VOCs	No Exceedances		
			Arsenic			SVOCs	No Exceedances		
			Pesticides/Herbicides			Pesticides/Herbicides	alpha-BHC	0.0021	0.0029
			4,4'-DDD			TPH	No Exceedances		
			alpha-BHC		5.0-6.0 Subsurface Soil	Metals	No Exceedances		
			beta-BHC			VOCs	No Exceedances		
			TPH			SVOCs	No Exceedances		
			>C12-C28			Pesticides/Herbicides	alpha-BHC	0.0021	0.0023
		Subsurface Soil >5	**Metals**			TPH	No Exceedances		
			Arsenic	SB-61	0-0.5 Surface Soil	Metals	Arsenic	8.43	18.7
			Pesticides/Herbicides				Nickel	26	26.8
			alpha-BHC				Selenium	0.679	1.25
							Thallium	0.142	0.148 J
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	4,4'-DDT	0.03	0.037
						TPH	No Exceedances		
					0.5-1.0 Shallow Soil	Metals	Selenium	1.04	1.05
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					7.0-8.0 Subsurface Soil	Metals	Selenium	1.04	1.42
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
				SB-92	0-0.5 Surface Soil	Metals	Arsenic	8.43	55.6
							Mercury	0.243	0.604
							Barium	300	446 J
							Selenium	0.679	1.23
							Thallium	0.142	0.176 J
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	4,4'-DDT	0.03	0.04 J
							Aldrin	0.002	0.0032
							alpha-BHC	0.0021	0.073 J
							beta-BHC	0.0026	0.008
							Dalapon	0.0055	0.006 J
							delta-BHC	0.0014	0.0022 J
							gamma-BHC	0.0014	0.016 J
							Toxaphene	0.0024	0.12 J
						TPH	No Exceedances		
					2.0-3.0 Shallow Soil	Metals	Arsenic	30.4	75.3
							Selenium	1.04	1.47
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	4,4'-DDD	0.043	0.046
							beta-BHC	0.0026	0.0043
						TPH	>C12-C28	1.5	120
					6.0-7.0 Subsurface Soil	Metals	Selenium	1.04	1.26
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		

Table 1
Soil PSV Exceedance Summary and Proposed Delineation Borings
WRN AOI-1-6
US Oil Recovery Superfund Site
Pasadena, TX

Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-117	Evaluate extent of COPCs in surface and shallow soil west of SB-63 amd SB-64	Surface Soil 0-0.5	**Metals** Arsenic **Pesticides/Herbicides** 4,4'-DDD 4,4'-DDT alpha-BHC beta-BHC delta-BHC Dieldrin Endrin Aldehyde gamma-BHC **TPH** >C12-C28	SB-63 Tidal	0-0.5 Surface Soil	Metals	Selenium	0.58	1.32
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	4,4'-DDD	0.043	0.06
							4,4'-DDT	0.03	0.49
							alpha-BHC	0.0021	0.73
							beta-BHC	0.0026	0.06
							delta-BHC	0.0014	0.035
							Dieldrin	0.0031	0.0063 J
							gamma-BHC	0.0014	0.14
						TPH	No Exceedances		
					3.0-4.0 Shallow Soil	Metals	Arsenic	30.4	59.8
							Mercury	0.243	2.21
		Shallow Soil 0.5-5	**Metals** Arsenic Mercury **Pesticides/Herbicides** 4,4'-DDD 4,4'-DDT Aldrin alpha-BHC beta-BHC delta-BHC Dieldrin gamma-BHC				Antimony	1	1.4
							Cadmium	1	4.16
							Selenium	1.04	2.17
						VOCs	No Exceedances		
						SVOCs	Pentachlorophenol	0.0004	0.018
						Pesticides/Herbicides	4,4'-DDD	0.043	0.13
							4,4'-DDT	0.077	0.09
							Aldrin	0.002	0.0051
							alpha-BHC	0.0021	0.038
							beta-BHC	0.0026	0.0068
							delta-BHC	0.0014	0.0037
							Dieldrin	0.0031	0.011 J
							gamma-BHC	0.0014	0.011
						TPH	No Exceedances		
				SB-64 Tidal	0-0.5 Surface Soil	Metals	Selenium	0.58	0.732
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	Endrin aldehyde	0.011	0.014
						TPH	C12-C28	1.5	12 J
					3.0-4.0 Shallow Soil	Metals	Selenium	1.04	1.32
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	alpha-BHC	0.0021	0.0072
							gamma-BHC	0.0014	0.002 J
						TPH	No Exceedances		
SB-118	Evaluate extent of COPCs in shallow soil north of SB-62	Shallow Soil 0.5-5	**Metals** Arsenic Mercury **Pesticides/Herbicides** 4,4'-DDD 4,4'-DDE 4,4'-DDT Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC Toxaphene **SVOCs** Benz(a)anthracene **TPH** >C12-C28	SB-62	0-0.5 Surface Soil	Metals	Selenium	0.679	0.839
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					2.0-3.0 Shallow Soil	Metals	Arsenic	30.4	50.4
							Mercury	0.243	0.727
							Manganese	847	952
							Selenium	1.04	2.26
						VOCs	No Exceedances		
						SVOCs	Benz(a)anthracene	0.29	0.41
						Pesticides/Herbicides	4,4'-DDD	0.043	0.28
							4,4'-DDE	0.054	0.12
							4,4'-DDT	0.077	3.4
							Aldrin	0.002	0.15
							alpha-BHC	0.0021	0.0077
							beta-BHC	0.0026	0.0029
							delta-BHC	0.0014	0.0018 J
							gamma-BHC	0.0014	0.0025 J
							Toxaphene	0.0024	0.22
						TPH	C12-C28	1.5	15 J
					8.0-9.0 Subsurface Soil	Metals	Selenium	1.04	1.93
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		

Table 1
Soil PSV Exceedance Summary and Proposed Delineation Borings
WRN AOI-1-6
US Oil Recovery Superfund Site
Pasadena, TX

Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-119	Evaluate extent of COPCs in surface, shallow and subsurface soil in the northeast slope area	Surface Soil 0-0.5	Full Analyte List	SB-82	0-0.5 Surface Soil	Metals	Arsenic	8.43	41.5
							Mercury	0.243	0.725
							Selenium	0.679	1.35
		Shallow Soil 0.5-5	Full Analyte List			VOCs	No Exceedances		
						SVOCs	No Exceedances		
		Subsurface Soil >5	Full Analyte List			Pesticides/Herbicides	4,4'-DDD	0.043	0.34
							4,4'-DDT	0.03	0.55
							Aldrin	0.002	0.0052
						TPH	No Exceedances		
					2.0-3.0 Shallow Soil	Metals	Arsenic	30.4	2640
							Barium	300	434
							Beryllium	1.53	2.02
							Boron	30	940
							Cobalt	17.1	60.3
							Manganese	847	1950
							Nickel	26	35.9
							Selenium	1.04	4.43
							Vanadium	75	98.8
						VOCs	1,2,3-Trichlorobenzene	0.021	0.12
							1,2,4-Trichlorobenzene	0.0033	2.9
							1,2-Dichlorobenzene	0.3	2.3
							1,4-Dichlorobenzene	0.00046	5.5
							Benzene	0.00023	1.2
							Chlorobenzene	0.053	5.4
							Ethylbenzene	0.0017	0.021
						SVOCs	1,1-Biphenyl	0.016	0.13
							1,2,4,5-Tetrachlorobenzene	0.0079	0.31
							2,4,6-Trichlorophenol	0.015	0.081 J
							Isophorone	0.026	0.28
						Pesticides/Herbicides	4,4'-DDD	0.043	54
							4,4'-DDE	0.054	40
							4,4'-DDT	0.077	580
							Aldrin	0.002	1.1
							alpha-BHC	0.0021	550
							alpha-Chlordane	0.29	5.9
							beta-BHC	0.0026	53
							delta-BHC	0.0014	16
							Dieldrin	0.052	19
							Dinoseb	0.062	0.068
							Endosulfan I	1.4	2.3
							Endosulfan II	1.4	7
							Endosulfan sulfate	1.4	2.2
							Endrin	0.081	8.1 J
							Endrin aldehyde	0.081	4.6 J
							Endrin ketone	0.081	0.89 J
							gamma-BHC	0.0014	56
							Heptachlor	0.013	2.1 J
							Heptachlor epoxide	0.046	2.6 J
							MCPA	0.002	4.1 J
							Methoxychlor	2	6.7 J
							Toxaphene	0.0024	260
						TPH	C6-C12	0.017	17 J
				SB-110 Tidal	0-0.5 Surface Soil	Metals	Arsenic	8.43	39.7
							Boron	30	99.3
							Selenium	0.58	1.51
							Thallium	0.103	0.168 J
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
						Metals	Arsenic	30.4	1720
							Mercury	0.243	2.87
							Antimony	1	4.41
							Boron	30	516
							Cobalt	17.1	23.7
							Selenium	0.735	2.16
							Thallium	0.014	0.256 J
						VOCs	1,2,3-Trichlorobenzene	0.021	11
							1,2,4-Trichlorobenzene	0.0033	100
							1,2,4-Trimethylbenzene	0.021	0.92
							1,2-Dichlorobenzene	0.3	96
							1,4-Dichlorobenzene	0.00046	150
							Benzene	0.00023	3.3
							Chlorobenzene	0.053	56
							Chloroform	0.000061	0.022
							Ethylbenzene	0.0017	0.84
							Tetrachloroethene	0.0023	0.019
							Xylenes, total	0.19	5
						SVOCs	1,1-Biphenyl	0.016	0.06 JL
							1,2,4,5-Tetrachlorobenzene	0.0079	0.9 JL
							2,4,6-Trichlorophenol	0.015	0.12 JL
							2,4-Dichlorophenol	0.054	0.19 JL
							Hexachlorobutadiene	0.0091	0.043 JL
							Naphthalene	0.11	0.15 JL

Table 1
Soil PSV Exceedance Summary and Proposed Delineation Borings
WRN AOI-1-6
US Oil Recovery Superfund Site
Pasadena, TX

Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-119 Continued	Evaluate extent of COPCs in surface, shallow and subsurface soil in the northeast slope area			SB-110 Continued	4.0-5.0 Shallow Soil Continued	Pesticides/Herbicides	4,4'-DDD	0.043	56
							4,4'-DDE	0.054	36
							4,4'-DDT	0.077	670 J
							Aldrin	0.002	1.8 J
							alpha-BHC	0.0021	1000
							alpha-Chlordane	0.29	6.3 J
							beta-BHC	0.0026	87
							delta-BHC	0.0014	56
							Dichlorprop	0.23	14 J
							Dieldrin	0.0031	12
							Endosulfan II	1.4	6.2
							Endosulfan sulfate	1.4	3.9 J
							Endrin	0.081	1.3 J
							Endrin aldehyde	0.081	5.3 J
							Endrin ketone	0.081	1.1 J
							gamma-BHC	0.0014	300
							gamma-Chlordane	0.23	10
							Heptachlor	0.00016	5.7
							Heptachlor epoxide	0.000078	1.6 J
							MCPA	0.002	1200
							MCPP	8	2700
							Methoxychlor	2	23
							Toxaphene	0.0024	290 J
						TPH	C6-C12	0.017	42 J
							>C12-C28	1.5	520
					5.0-6.0 Subsurface Soil	Metals	Arsenic	30.4	2000
							Antimony	1	4.43
							Barium	300	305
							Boron	30	521
							Cobalt	17.1	27.3
							Selenium	0.735	2.11
							Thallium	0.014	0.252 J
						VOCs	1,2,3-Trichlorobenzene	0.021	15
							1,2,4-Trichlorobenzene	0.0033	140
							1,2,4-Trimethylbenzene	0.021	1.3
							1,2-Dichlorobenzene	0.3	140
							1,3,5-Trimethylbenzene	0.17	0.2
							1,3-Dichlorobenzene	3.4	5.7
							1,4-Dichlorobenzene	0.00046	230
							Benzene	0.00023	5.6
							Chlorobenzene	0.053	96
							Chloroform	0.000061	0.02
							Ethylbenzene	0.0017	1.4
							Tetrachloroethene	0.0023	0.028
							Xylenes, total	0.19	5.9
						SVOCs	1,1-Biphenyl	0.016	0.071
							1,2,4,5-Tetrachlorobenzene	0.0079	0.51
							2,4,6-Trichlorophenol	0.015	0.16
							2,4-Dichlorophenol	0.054	0.22
							Hexachlorobutadiene	0.0091	0.031
							Isophorone	0.026	0.031
							Naphthalene	0.11	0.17
						Pesticides/Herbicides	2,4-DB	0.085	15 J
							4,4'-DDD	0.043	64
							4,4'-DDE	0.054	54
							4,4'-DDT	0.077	760
							Aldrin	0.002	1.3 J
							alpha-BHC	0.0021	990
							alpha-Chlordane	0.29	5.5 J
							beta-BHC	0.0026	90
							delta-BHC	0.0014	70
							Dichlorprop	0.23	13 JH
							Dieldrin	0.0031	16
							Endosulfan II	1.4	6.4
							Endosulfan sulfate	1.4	2.3 J
							Endrin	0.081	1.4 J
							Endrin aldehyde	0.081	3.9 J
							Endrin ketone	0.081	1.5 J
							gamma-BHC	0.0014	290
							gamma-Chlordane	0.23	13
							Heptachlor	0.00016	4.8
							Heptachlor epoxide	0.000078	1.9 J
							MCPA	0.002	1600
							MCPP	8	4700
							Methoxychlor	2	17
							Toxaphene	0.0024	230
						TPH	C6-C12	0.017	180 J
							>C12-C28	1.5	2300

Table 1
Soil PSV Exceedance Summary and Proposed Delineation Borings
WRN AOI-1-6
US Oil Recovery Superfund Site
Pasadena, TX

Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-120	Evaluate extent of COPCs in the northeast slope area	Surface Soil 0-0.5	Full Analyte List	SB-109	0-0.5 Surface Soil	Metals	Arsenic	8.43	68.9
							Mercury	0.243	0.313
							Manganese	997	1120
							Selenium	0.679	1.93
							Chromium	30	30.3
		Shallow Soil 0.5-5	Full Analyte List			VOCs	No Exceedances		
						SVOCs	No Exceedances		
		Subsurface Soil >5	Full Analyte List			Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					3.0-4.0 Shallow Soil	Metals	Arsenic	30.4	1640
							Mercury	0.243	88.7
							Antimony	1	4.62
							Barium	300	317
							Boron	30	81.8
							Cadmium	1	1.13
							Manganese	847	1400
							Selenium	1.04	3.1
						VOCs	1,2,4-Trichlorobenzene	0.0033	0.097
							1,2,4-Trimethylbenzene	0.021	0.031
							1,4-Dichlorobenzene	0.00046	0.73
							Benzene	0.00023	0.16
							Chlorobenzene	0.053	3.6
							Ethylbenzene	0.0017	0.014
						SVOCs	Hexachlorobutadiene	0.0091	0.035
						Pesticides/Herbicides	4,4'-DDD	0.043	120 JH
							4,4'-DDE	0.054	15 JH
							4,4'-DDT	0.077	140 JH
							Aldrin	0.002	0.025 JH
							alpha-BHC	0.0021	0.12 JH
							alpha-Chlordane	0.29	3.2 JH
							beta-BHC	0.0026	0.58 JH
							delta-BHC	0.0014	0.091 JH
							Dieldrin	0.052	13 JH
							Endrin	0.081	1 JH
							Endrin aldehyde	0.081	0.25 JH
							Endrin ketone	0.081	0.91 JH
							gamma-BHC	0.0014	0.035 JH
							gamma-Chlordane	0.23	3.1 JH
							Heptachlor	0.013	0.077 JH
							Heptachlor epoxide	0.046	0.76 JH
							Toxaphene	0.0024	78 JH
						TPH	C6-C12	0.017	15 J
							>C12-C28	1.5	210
SB-121	Evaluate extent of COPCs in surface and shallow soil west of SB-47, SB-48 and SB-73	Surface Soil 0-0.5	**Metals** Arsenic Mercury	SB-47	0-0.5 Surface Soil	Metals	Selenium	0.679	0.931
							Zinc	416	455
		Shallow Soil 0.5-5	**Metals** Arsenic Mercury **Pesticides/Herbicides** Aldrin alpha-BHC			VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					1.0-2.0 Shallow Soil	Metals	Selenium	1.04	1.2
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	Aldrin	0.002	0.0083
						TPH	No Exceedances		
				SB-48 Tidal	0-0.5 Surface Soil	Metals	Arsenic	8.43	10.7
							Mercury	0.243	0.253
							Selenium	0.58	1.26
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					4.0-5.0 Shallow Soil	Metals	Mercury	0.243	0.396
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
				SB-73	0-0.5 Surface Soil	Metals	Arsenic	8.43	9.94
							Selenium	0.679	1.12
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	Aldrin	0.002	0.0021 J
						TPH	No Exceedances		
					3.0-4.0 Shallow Soil	Metals	No Exceedances		
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	Aldrin	0.002	0.0078
							alpha-BHC	0.0021	0.023
						TPH	No Exceedances		

Table 1
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WRN AOI-1-6
US Oil Recovery Superfund Site
Pasadena, TX

Proposed Delineation Boring	Objective	Proposed Intervals (depths are feet bgs)	Proposed Analytes	Associated Perimeter Borings	Sample Depth (feet bgs) and Interval	COPC Group	Analyte PSV Exceedances (Proposed Analytes for Delineation Shaded Blue)	PSV (mg/kg)	Sample Concentration (mg/kg)
SB-122	Evaluate extent of COPCs in surface and shallow soil west of SB-6, SB-8 and SB-83	Surface Soil 0-0.5	**Metals** Arsenic Mercury **Pesticides/Herbicides** 4,4´-DDD 4,4´-DDE 4,4'-DDT Aldrin beta-BHC Dieldrin Endrin Aldehyde	SB-6	0-0.5 Surface Soil	Metals	Arsenic	8.43	9.74
							Selenium	0.679	1.02
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					3.0-5.0 Shallow Soil	Metals	Selenium	1.04	1.1
						VOCs	1,4-Dichlorobenzene	0.00046	0.02
						SVOCs	No Exceedances		
						Pesticides/Herbicides	Aldrin	0.002	0.0056
						TPH	No Exceedances		
		Shalow Soil 0.5-5	**Metals** Arsenic **VOCs** 1,4-Dichlorobenzene **Pesticides/Herbicides** Aldrin	SB-8	0-0.5 Surface Soil	Metals	Arsenic	8.43	33.6
							Mercury	0.243	0.248
							Antimony	1	14.2
							Selenium	0.679	1
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	4,4´-DDD	0.043	0.046 JL
							4,4´-DDE	0.054	0.31 JL
							4,4'-DDT	0.03	0.044 JL
							Aldrin	0.002	0.017 JL
							beta-BHC	0.0026	0.0096 JL
							Dieldrin	0.052	0.1 JL
							Endrin aldehyde	0.011	0.018 JL
						TPH	No Exceedances		
					3.0-5.0 Shallow Soil	Metals	Selenium	1.04	1.19
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
				SB-83	0-0.5 Surface Soil	Metals	Selenium	0.679	0.73
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	No Exceedances		
						TPH	No Exceedances		
					0.5-1.0 Shallow Soil	Metals	No Exceedances		
						VOCs	No Exceedances		
						SVOCs	No Exceedances		
						Pesticides/Herbicides	Aldrin	0.002	0.0047
						TPH	No Exceedances		

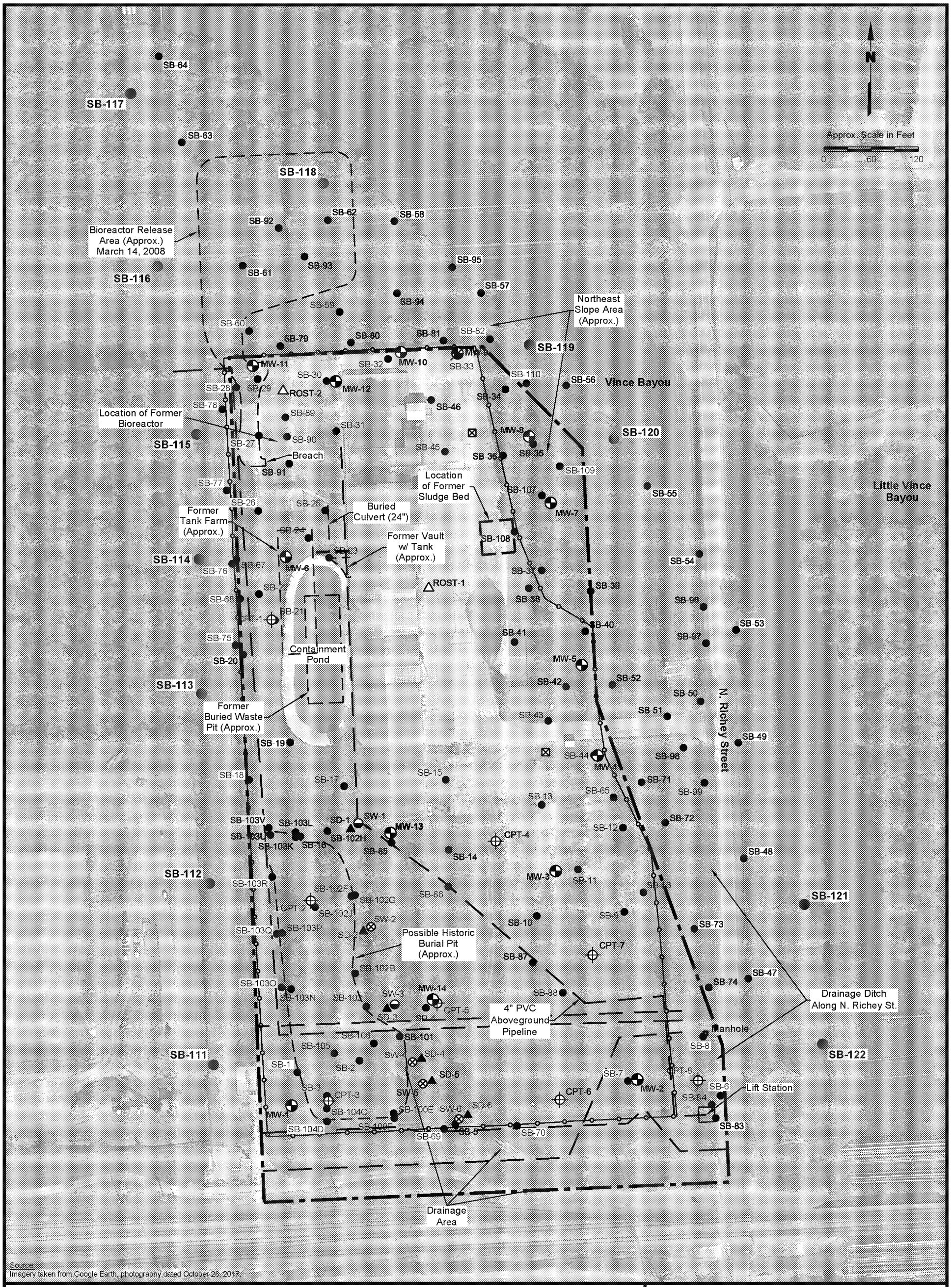
Notes:
Proposed delineation borings shown on Figure 1
COPC - Chemical of Potential Concern
PSV - Preliminary Screening Value (lower of applicable human health or ecological PSV)
VOCs - Volatile Organic Compounds
SVOCs - Semi-Volatile Organic Compounds
TPH - Total Petroleum Hydrocarbons
bgs - below ground surface
mg/kg - milligrams per kilogram
-- not analyzed; boring part of historic pit delineation

Table 2
Proposed Delineation Wells and Groundwater Data Exceedance Summary for Perimeter Monitoring Wells
US Oil Recovery
Pasadena, Texas

Proposed Delineation Monitoring Well	Objective	Proposed Analytes	Associated Monitoring Well	COPC Group	Analytes Exceeding PSVs	PSV (mg/L)	Concentration (mg/L)
MW-16	Evaluate extent of COPCs east of MW-7 in northeast slope area	**Full Analyte List**	MW-7	Metals	Arsenic	0.01	43.9
					Boron	4.900	9.94
				VOCs	1,2-Dichloroethane	0.005	0.091
				SVOCs	1,4-Dioxane	0.00091	0.0038 JL
				Pesticides and Herbicides	Aldrin	0.0000054	0.000069 J
					alpha-BHC	0.0000140	0.0035
					beta-BHC	0.0000510	0.0056
					Dieldrin	0.0000057	0.00011 J
					gamma-BHC	0.0002000	0.0011
				TPH	No Exceedances		
MW-15	Evaluate extent of COPCs east/downgradient of MW-8 in northeast slope area	**Full Analyte List**	MW-8	Metals	Manganese	1.1	4.29
				VOCs	1,2-Dichloroethane	0.005	0.17
				SVOCs	1,4-Dioxane	0.00091	0.0089 JL
				Pesticides and Herbicides	Aldrin	0.0000054	0.000049 JH
					beta-BHC	0.000051	0.0046 JH
					Dieldrin	0.0000057	0.00042 JH
					gamma-BHC	0.0002	0.00087 JH
				TPH	No Exceedances		
MW-9	Replace MW-9 and evaluate extent of COPCs northeast/downgradient or MW-10	**Full Analyte List**	MW-10	Metals	Boron	4.9	6.19
					Manganese	1.1	1.91
				VOCs	1,4-Dichlorobenzene	0.075	1
					Benzene	0.005	0.12
					Chlorobenzene	0.1	1.8
				SVOCs	No Exceedances		
				Pesticides and Herbicides	4,4'-DDT	0.0003	0.00036 JH
					Dieldrin	0.0000057	0.00079 JH
					gamma-BHC	0.0002	0.013 JH
					Heptachlor epoxide	0.0002	0.00065 JH
					MCPA	0.012	3 J
					MCPP	0.024	0.314 J
				TPH	C6-C12	0.98	2.5
					>C12-C28	0.98	1.2

Notes:
Proposed monitoring well locations are shown on Figure 2
PSV - Preliminary Screening Value, which is the lower of the EPA Maximum Contaminant Level or the applicable TCEQ Protective Concentration Limit

FIGURES



Source:
Imagery taken from Google Earth, photography dated October 29, 2017

EXPLANATION

- Approx. Property Boundary
- Approx. Security Fence
- Approx. Pipeline Location
- Soil Boring Location per RI/FS Work Plan (Source Areas/Industrial Activities)
- Soil Boring Location per RI/FS Work Plan (Drainage Areas)
- Surface Water Sample Location
- Surface Water Sample Location - Not Collected due to absence of Surface Water
- Sediment Sample Location
- Monitoring Well Location
- CPT Location
- CPT/ROST Location
- CPT Location - Eliminated due to Underground Obstruction
- Monitoring Well Not Installed Due to Presence of Saturated Fill Material
- Proposed Soil Boring Location

Soil Exceedances
(Existing Soil Boring Locations)
and Proposed Sampling Intervals
(Proposed Soil Boring Locations)

- Surface Soil
- Shallow Soil
- Subsurface Soil

US OIL RECOVERY SUPERFUND SITE

PASADENA, HARRIS COUNTY, TEXAS

Figure 1

EXTENT EVALUATION AND PROPOSED SOIL BORING LOCATION MAP

PROJECT: 3333	BY: AJD	REVISIONS
DATE: NOV., 2017	CHECKED: MKW	

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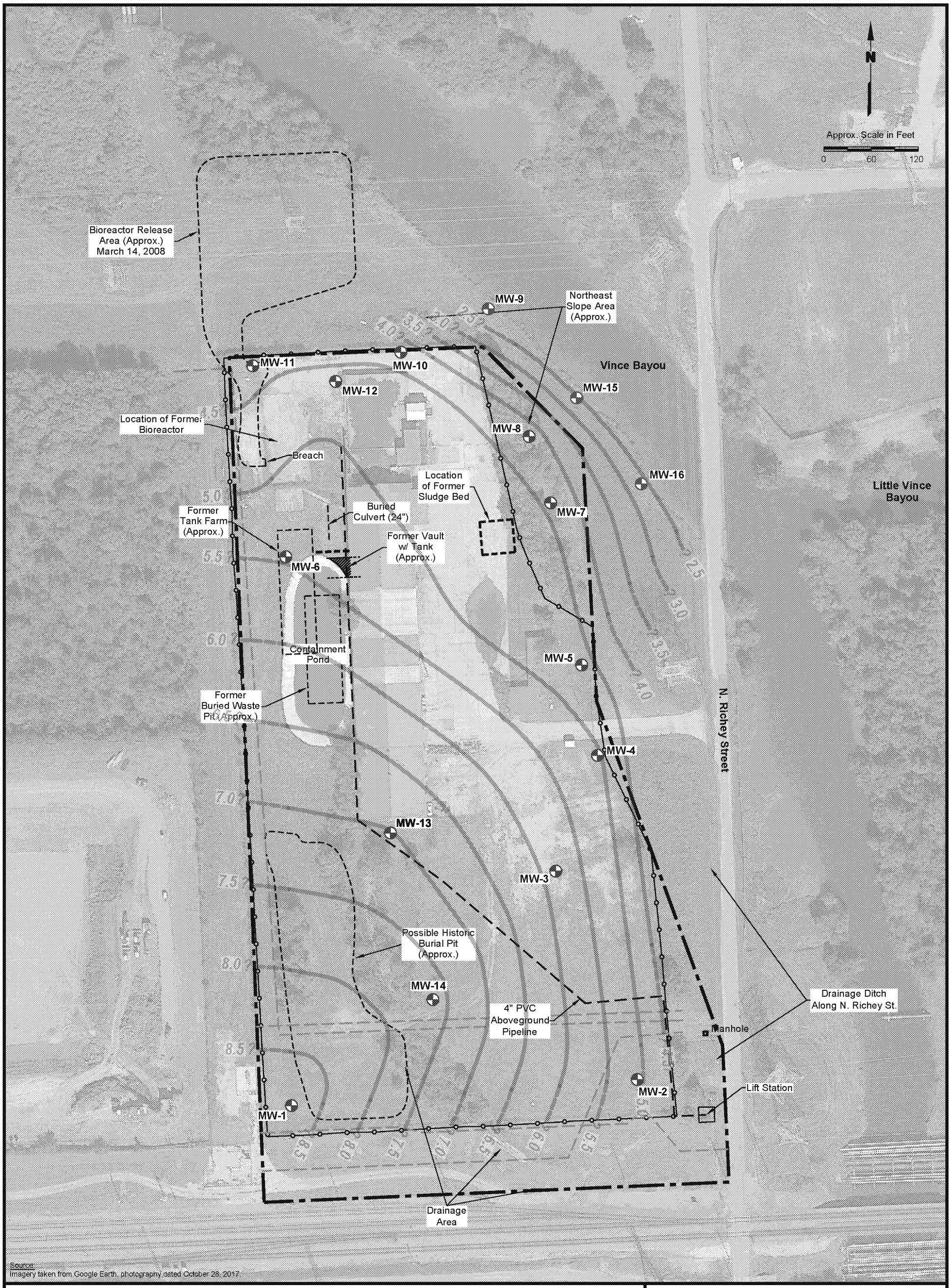

EXPLANATION

- Approx. Property Boundary
- Approx. Security Fence
- Approx. Pipeline Location
- Monitoring Well Location
- Proposed Monitoring Well Location
- Potentiometric Contour (Ft AMSL) C.I.=0.5 Ft (dashed where inferred) Measured 8/17/17

US OIL RECOVERY SUPERFUND SITE

PASADENA, HARRIS COUNTY, TEXAS

Figure 2

PROPOSED MONITORING WELL LOCATION MAP

PROJECT: 3333	BY: AJD	REVISIONS
DATE: NOV., 2017	CHECKED: MKW	

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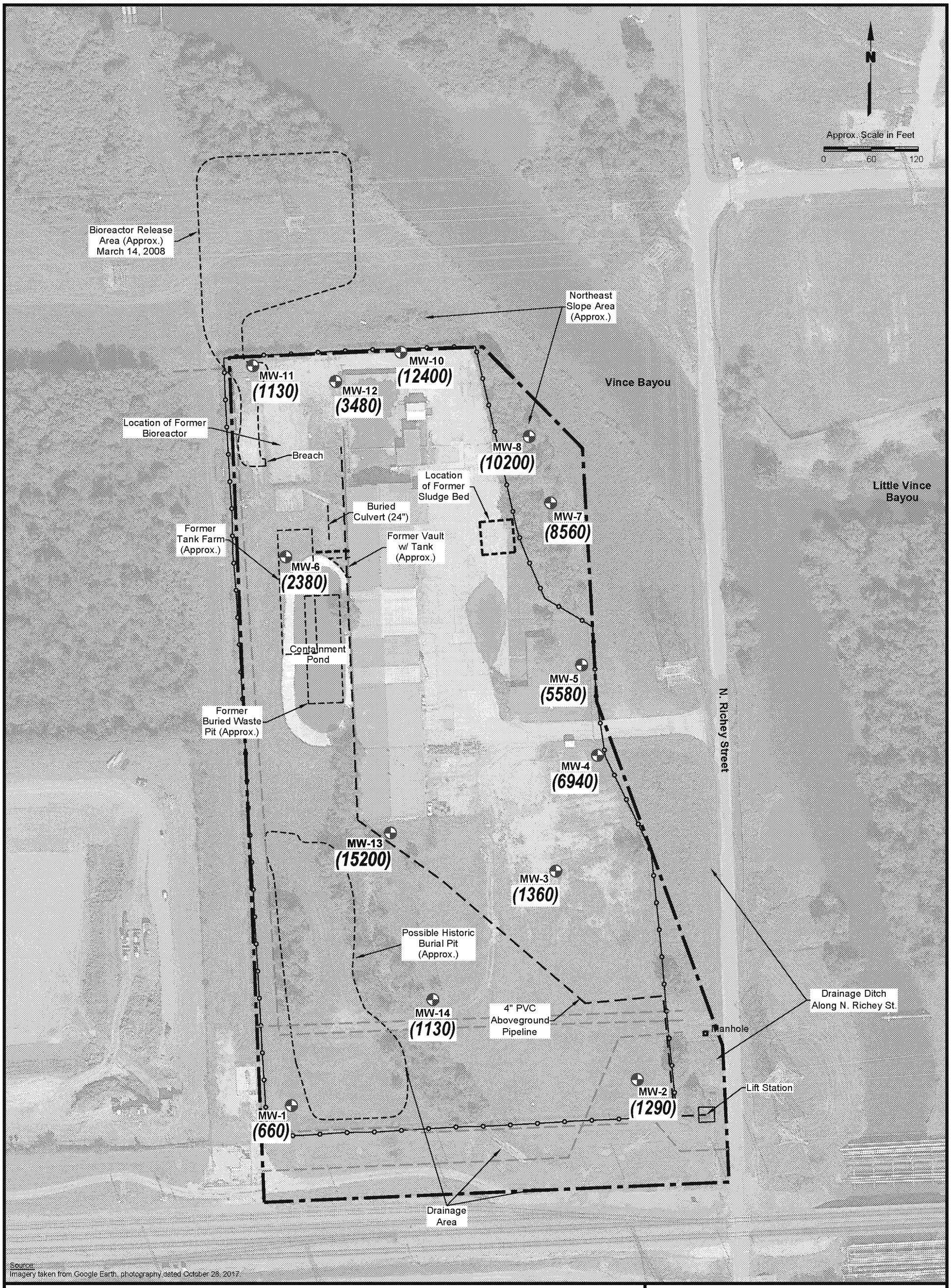

EXPLANATION

- Approx. Property Boundary
- Approx. Security Fence
- Approx. Pipeline Location
- Monitoring Well Location
- *(660)* TDS Concentration (mg/L) (Samples collected July 20-24, 2017)

US OIL RECOVERY SUPERFUND SITE

PASADENA, HARRIS COUNTY, TEXAS

Figure 3

TOTAL DISSOLVED SOLIDS CONCENTRATIONS IN GROUNDWATER SAMPLES

PROJECT: 3333	BY: AJD	REVISIONS
DATE: NOV., 2017	CHECKED: MKW	

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